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Gender Differences in College Students' Attributions for Success and Failure

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GENDER DIFFERENCES IN COLLEGE STUDENTS' ATTRIBUTIONS FOR SUCCESS AND FAILURE

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Attributions for success and failure have been the topic of much research. One area of focus is that of gender differences. Research has produced highly inconsistent results, but many believe that differences exist in the way men and women attribute success and failure. The present study was designed to identify differences in the ways college men and women make attributions for success and failure and to determine whether there are gender differences in attributions for success and failure in ego-involved areas. Three hundred and ninety undergraduate students completed the Collegiate Attributions Scale. Results showed that (a) college students are more likely to make internal/stable attributions for success in a class of their major than in a class outside their major, (b) females are as likely as males to attribute success to internal/ stable factors and failure to external/unstable factors, (c) both males and females tend to attribute academic failure to lack of effort and course difficulty, (d) females are more likely than males to make internal/stable attributions for success in gender role consistent classes and for failure in gender role inconsistent classes, and (e) females are more likely than males to attribute both academic success and failure to effort. These results suggest that female attributions undergo some changes from high school to college, but male attributions remain fairly constant.

Review of the Literature

Attributional styles have been the topic of extensive research, with studies dating back over three decades. Research on attributions has been helpful to social psychologists learning about the different ways that males and females explain their successes and failures in academic as well as everyday situations.

The ancestor to attributional theory is the theory of locus of control. The term "locus of control" can be viewed as having two dimensions -- internal and external. Rotter (1966) defined internal control as the belief that reinforcement resulting from an event is "contingent upon (one's) own behavior or (one's) own relatively permanent characteristics" (p. 1). He defined external control as reinforcement resulting from an event that is "perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding (one)" (p.1). Therefore, a person with an internal locus of control attributes rewards to personal actions or characteristics, and a person with an external locus of control attributes rewards to luck, fate, chance, or the actions of others.

In Levenson's 1972 study (as cited in Connor, 1995), she further defined internal and external loci of control. She proposed two distinct dimensions of external locus of control. The first is the belief that the world is unorganized and uncontrollable and that one cannot expect to influence the possibility of a desired outcome but must rely on chance for the occurrence of a desired outcome. The second dimension is the belief that although the world is highly organized and controllable, outcomes of events are in the hands of other people possessing great power. Thus, Levenson redefined the idea of internal and external loci of control by theorizing that locus of control can be split into three categories: (a) internal, (b) powerful others, and (c) chance.

Theories on Causal Attributions for Performance

The idea of causal attributions stems directly from the theory of locus of control. Phares (1976) defined attributions as perceptions of causality, or a person's perceived reasons for the occurrence of a particular event. Weiner et al. (1971) defined attributions in terms of two dimensions, locus of control (internal vs. external) and stability (stable vs. unstable). Research on causal attributions for success and failure has produced four main factors of attributions-- ability, effort, luck, and task difficulty (Mednick & Thomas, 1993)-- that vary along the internal and external continua and along the stable and unstable continua. Factors that are subject to change are defined as unstable factors, and unchanging factors are defined as stable. Thus, attributing an outcome to ability would be defined as internal and stable, while attributing an outcome to effort would be defined as internal and unstable. Luck would be defined as external and unstable, while task difficulty would be defined as external and stable. Mednick and Thomas (1993) reported that people with low expectations and low persistence are more likely to attribute failure to low ability, an internal, stable attribution. However, people who attribute failure to lack of effort (which, while internal, is unstable) are less likely to develop low expectations of themselves and are more likely to persist in their activities, despite failure. This finding suggests that internal attributions, while debilitating, are less harmful when the attributions are unstable rather than stable.

Phares (1976) theorized that external attributions made to luck or powerful others do not increase levels of persistence but do aid in guilt avoidance. However, internal attributions may lead to a sense of guilt, which could hinder one's performance and decrease persistence. DuCette and Wolk (1972) showed that, when compared to internals, externals were lower in levels of persistence and aspirations but exhibited a higher preference for extreme risks. Furthermore, they stated that people who have tendencies to make external attributions for success and failure are more likely to be anxious, defensive, and low achievers, and to suffer from various forms of psychopathology.

Weiner et al. (1971) theorized that individuals with an external attributional style are less likely than those with an internal style to pursue excellence because their external belief system denies them the opportunity to experience emotions following success. Internals, however, are able to associate various emotions to success and failure and may experience pride following success and various negative emotions following failure. Research by Karabenick (1972) showed that internals experience higher levels of satisfaction following success on difficult tasks but are more threatened by failure. Feather (1969) also demonstrated that, compared to externals, internals tend to have higher aspirations following success and lower aspirations following failure.

Theories on Gender Differences in Causal Attributions

Much research has been conducted to investigate gender differences in attributions of success and failure. Frieze, Whitley, Hansua, and McHugh (1982) found that men were more likely to attribute both their successes and their failures to luck less often than women. Similarly, studies by McMahan (1982) and Hackett and Betz (1981) both demonstrated that women were more likely than men to make external attributions for success, attributing their success to luck rather than to ability. However, the researchers found that, in situations of failure, women were more likely to make internal attributions than were men, attributing their failure to low ability and giving themselves less credit for ability in general than men did. Welch, Gerrard, and Huston (1986) compared attributional differences between high and low instrumental women; instrumentality referred to forming attributions that best serve to protect the person's self esteem. They found that high instrumental women possessed an "egotistical" attributional profile similar to that of men; that is, the high instrumental women attributed their successes internally and their failures externally, as a means of protecting their self-esteem, whereas low instrumental women displayed opposite attributional styles, suggesting less confidence in their abilities and greater willingness to view failure as due to low ability.

Attributional theorists have proposed several explanations for the finding that females tend to have less confidence in their abilities than males. Research by Broverman, Vogel, Broverman, Clarkson, and Rosenkrantz (1972) showed that females tend to be stereotyped as less competent than males, and the incorporation of these stereotypes into one's self-concept may contribute to females' lack of confidence regarding their intellectual abilities. Thus, females may have lower expectations than males for academic and vocational success. Furthermore, a lack of confidence in intellectual abilities may lead to a female's belief that she may have to work harder than males to achieve success. Research by McMahan (1982) supports this hypothesis, although Ryckman and Peckman (1987) comment that further evidence for this hypothesis is weak.

Frieze et al. (1982) reviewed three models of attributional sex differences and performed a meta-analysis of gender differences in success and failure attributions; based on evidence obtained in the research, they suggested that women have a greater tendency to make external attributions for both success and failure than do men. They proposed that this finding is so because women have higher levels of both fear of success and fear of failure, which may cause them to withdraw from achievement situations and, thus, may lead women to view the outcomes of situations as being the result of external factors. Furthermore, attributing outcomes to external factors such as luck protects against fear of success by removing the responsibility for the success and protects against fear of failure by decreasing feelings of shame.

However, none of the three models of attributional sex differences was supported by the meta-analysis, and it should be noted that the gender differences in attributional style, while evident, were small. Thus, the researchers concluded that these results may indicate that causal attributions are not as important as previously believed in explaining gender differences in achievement behavior. On the other hand, Frieze et al. (1982) remarked that a lack of significant gender differences in causal attributions may be a result of poor research which neglects to ask

important questions (although the researchers did not say what questions) in attempting to explain gender differences in achievement behavior.

In Wittig's (1985) review of the role of sex-role norms in attributions for success and failure, she stated that, for both genders, people have more internal, stable attributions when the outcome expectancy is positive, as long as the situation is sex-appropriate, such as a female succeeding at a 'feminine' task and a male succeeding at a 'masculine' task. However, she comments that when a woman succeeds at a 'masculine' task, her success is viewed as incompatible with social norms, and, thus, the woman may perceive herself (or be perceived by others) as having succeeded due to external causes such as luck or effort.

Deboer (1985) supported the theory regarding attributions and gender stereotyped tasks. He explained the underrepresentation of women in college science courses (a "masculine" domain) as being due to several factors. One of these is the finding that women have lower self-esteem and thus a greater tendency to internalize failure. Also, because women have a greater tendency to withdraw from achievement situations, they may have a greater tendency to externalize achievement, attributing it to luck or task ease. Finally, the fact that women have lower levels of expectancy for success may lead to unstable attributions for success but stable attributions for failure. Deboer concluded that women who are successful in the "masculine" field of science view themselves as being harder workers than unsuccessful women, which suggests that successful women perceive themselves as working against greater odds to be successful and, thus, have to be more dedicated and persistent to succeed.

Theories on the Effect of Ego Involvement on Causal Attributions

Wittig (1985) offered another explanation of sex differences in causal attributions. She suggested that males and females may value outcomes differently, leading to differences in the causal attributions each gender makes. These differences may be derived from the difference in the salience of the outcomes to each gender. This concept called "ego involvement," which simply

means that the type of attribution a person makes about an outcome (internal vs. external or stable vs. unstable) is dependent upon the amount of relevance the event has upon that person's self-esteem.

Ego Involvement may be gender related. For example, a male or a female performing a sex-stereotyped task, such as the "masculine" task of car repair, may form different attributions as a result of one's level of performance. Wittig (1985) suggested that a person who fails at a task that is stereotyped to that person's gender will find the failure more salient than failure at a task that is stereotyped toward the opposite gender. Wittig hypothesized that when the ego is involved and a person finds failure at a task that is stereotyped to his/her gender to be personally salient, that person will internalize the cause of the failure at the sex stereotyped task. However, Wittig proposed the opposite results for situations of failure in non-salient tasks. She suggested that people tend to attribute failure in non-salient tasks that are not stereotyped to their gender as being due to external factors such as luck. Briefly, this theory proposes that individuals assume more responsibility for failure on salient tasks than on non-salient tasks. Wittig did not discuss the effect that ego-involvement may have upon success on salient and non-salient tasks but cited other researchers (e.g., Deaux & Farris, 1977), who found that differences between males and females in attributions occur more frequently in the failure condition than in the success condition.

However, in contrast to Wittig's theory, Miller (1976) investigated the impact of ego-involvement on causal attributions for success and failure by looking at the effect that task importance had on attributions for success or failure on a bogus self-perceptiveness task. Miller theorized that people are more willing to accept responsibility for success than for failure and that people are more likely to blame failures on such external factors as luck and task difficulty. Furthermore, Miller hypothesized that the greater the level of ego involvement, the more external the attributions are for failure, and the more internal the attributions are for success. Thus, a

person can protect the self-esteem by taking credit for success and denying responsibility for failure.

To test his hypotheses, (a) that attributions are more affected under high rather than low levels of ego involvement, and (b) that the higher the involvement of a person's self-esteem is, the more likely that person is to assume responsibility for success rather than failure, Miller (1976) administered a bogus self-perceptiveness task to college students and found that individuals did take more responsibility for successful rather than failing outcomes. Miller observed that, in conditions of failure, people utilized more self protective, external attributions when ego-involvement was high. Furthermore, in situations of success, subjects with high levels of ego involvement made more internal, ability attributions than did successful but low ego-involved subjects, indicating that the more the ego is involved, the more self-enhancing the attributions are.

Miller also found that, consistent with Deaux and Farris (1977), ego involvement has a greater effect on attributions in situations of failure than it does in situations of success. Miller suggested that this finding may be due to the fact that even success in situations of low ego involvement enhances self-esteem, and, thus, there is only a small difference between internal and external attributions in successful situations. However, in failure situations, when self-esteem is threatened, it makes sense that there is a large difference between internal and external attributions where high vs. low ego involvement is concerned.

Theories on Gender Differences and Ego Involvement

Although Miller did not examine gender differences in the relationship between ego-involvement and attributions, Deaux and Farris (1977) carried the research that one step further and conducted two experiments to determine what gender differences, if any, existed in attributions for performance. The researchers found three main results: (a) males evaluated their performance as being more successful than females, (b) following successful performance, males claimed

greater ability than females, and (c) females were more likely than males to attribute their performance to luck rather than ability.

Deaux and Farris (1977) found that, on feminine tasks, the causal attributions of males and females for success and failure tended to be similar. However, the researchers found that males and females differed to a greater extent in their causal attributions in failure situations on masculine tasks, with males being more reluctant than females to attribute their failure on a masculine task to poor ability, preferring to use external attributions instead. Also, in the failure condition of masculine tasks, females made more negative predictions of future performance than did males.

In addition, Deaux and Farris (1977) found that when the performance expectancies differed between genders, the attributions did as well. Since men had higher expectations for a successful outcome, they attributed their success more often to ability, whereas women, with lower expectancies, attributed their success more often to luck. Also, since women had lower expectancies, failure did not come unexpectedly and may have tended to confirm their predictions of poor performance. Therefore, females were more likely to use stable, internal attributions for the failure. However, for men, failure was more unexpected and, as a result, they were more likely to use unstable, external attributions such as bad luck. The researchers suggested that female participants may have been overreacting to failure and more accepting of it because it was more expected, although male participants may have been defensively underreacting to failure as a means of maintaining high levels of self-esteem.

Theories on Gender Differences and Gender Stereotyped Situations

Such performance expectancies, as they relate to gender-stereotyped situations, have also been the subject of research. It is well known that male students are more likely to study typically masculine fields such as math and science, whereas female students are more likely to study feminine fields such as language arts (Deboer, 1985). One explanation for these choices is that

people have higher performance expectancies in tasks that are stereotyped towards their gender (for example, males - math/science, females - language arts) due to the involvement of self-esteem (consistent with the ego involvement theory) (Stipek, 1984). Lenney (1977) reported that males and females believed that it was highly important to succeed in same-sex tasks, and he stated that performance expectancies on a task were directly related to the sex-appropriateness of that task. Deaux and Farris (1977) further showed that people expect to perform better on tasks that are stereotyped to their gender (same-sex tasks). Consistent with the ego involvement theory, they may therefore attribute success on that task to ability and failure on an opposite-sex task to lack of ability (because self-esteem is not as involved in opposite-sex tasks). Conversely, Deaux and Farris (1977) demonstrated that people attribute success on an opposite-sex task and failure on a same-sex task to external factors such as luck. This finding is also consistent with the ego-involvement theory, because self-esteem is assumed to be involved in same-sex tasks more than it is with opposite-sex tasks.

Several researchers have examined gender differences in causal attributions of sex-stereotyped classes (Ryckman & Peckham, 1987; Li & Adamson, 1995; Cramer & Oshima, 1992). Ryckman and Peckham (1987) administered the Survey of Achievement Responsibility to elementary school children in order to determine the extent of gender differences in learned helplessness as well as causal attributions for success and failure in math, science, and language arts. The results showed that females were more likely than males to exhibit learned helplessness in math and science and were more likely to attribute outcomes in math and science to luck. However, the same was not true for language arts, in which neither females nor males exhibited a pattern of learned helplessness. Also, males were more likely than females to attribute outcomes in language arts to luck, whereas females were more likely to attribute the outcomes to ability. The researchers also found that, overall, males were less likely than females to attribute failures to lack of ability, regardless of the subject area. Furthermore, in general, males and females both

displayed a more adaptive attributional pattern in language arts than they did in math or science. The researchers suggested that this pattern may be due to the fact that students of both genders feel they have more control over their success in the field of language arts than math or science.

Li and Adamson (1995) suggested that the value people place on a task is more closely related to gender differences in attributions in achievement-related situations than it is to learned helplessness. Thus, how interesting or how important a task is may be a more significant determinant of attributions than is learned helplessness. The researchers commented that the fact that females tend to have a more positive attitude toward English than males and have a less positive attitude toward math than males may result from the difference in attitudes toward that subject according to the amount of importance it holds or interest that it raises.

Li and Adamson (1995) researched gender differences in the attributional patterns of gifted high school students in areas of math, science, and English. Students were administered measurements of perceived ability, learning style preference, subjective task value, causal attributions, attribution of responsibility, self-perception, and intrinsic motivation. Results were similar to those mentioned previously, in that gifted girls indicated that they believed that academic success is a product of effort and strategy, as opposed to ability. Gifted girls reported greater confidence than males in English. However, the researchers found female participants to be as confident and interested in math and science as males, which seems to distinguish gifted females from non-gifted females, who lack confidence in these masculine subjects. The researchers suggested that finding may be due in part to gifted females' superior intellectual abilities and, more importantly, to the fact that parents and teachers tend to give more encouragement to gifted females (versus non-gifted females) to pursue the fields of math and science. However, this suggestion does not explain why the gifted females nonetheless were more likely to attribute success to external factors than the gifted males. The researchers did not address this issue. However, the researchers concluded by suggesting that more girls would feel comfortable in typically masculine

subject areas such as math and science if parents and teachers would try to make these subjects more interesting and attractive to girls early in their education.

Cramer and Oshima (1992) also researched the attributions of gifted females toward math performance. The Survey of Achievement Responsibility Scale was administered to children in grades 3, 6, and 9. The results of this research contradicted the findings of Li and Adamson (1995). Cramer and Oshima found that differences in causal attributions for math performance were greatest among gifted male and female students. Furthermore, the differences became most evident when students reached the ninth grade; the researchers suggested that these differences are indicative of the development of self-defeating behavior in gifted females at some point between the sixth and ninth grade. However, the authors also suggested that these differences may be due to standards for achievement becoming more gender-stereotyped (males - math/science and females - language arts) when the students become adolescents, which may indicate that gifted adolescent females become more interested in other areas of competency (such as language arts) than gifted adolescent males. The gifted females may simply view success in math to be opposite of stereotyped expectations.

Research on Causal Attributions Commonly Made By Students

Griffin, Combs, Land, and Combs (1983) took a different perspective in examining gender differences in attributions for success and failure among high school students. They identified the four traditional causal attributions - ability, effort, task difficulty, and luck - and also identified three other causal attributions commonly made by students: teacher's performance, course interest, and past experience with the subject matter. They examined these seven causal attributions as they are applied in ego-involving situations: success or failure in academic courses. The results indicated that male students tended to attribute success to ability, whereas female students tended to attribute success to course interest as well as effort. Overall, however, the gender differences in attributions for academic success and failure were very small. The researchers did not report

whether there were gender differences in attributions involving the effects of teacher performance and previous experience. Also, although the researchers examined course interest as it relates to female attributions, the researchers failed to report whether any of the male subjects attributed success to course interest or if either males or females attributed failure to lack of course interest or lack of prior experience.

Although the research on gender differences in causal attributions for success and failure may appear exhaustive, many questions remain unanswered. As mentioned above, how is interest in a subject related to a person's attributions for performance? For each gender, what effect, if any, does prior experience have upon ego-involvement and, thus, attributions? Do the gender differences in causal attributions made by elementary-age school children differ significantly from the gender differences in causal attributions made by adolescents and, furthermore, by college students or adults?

The present study investigated attributions of college students. The following hypotheses were addressed:

1. When students take classes required for their majors:

a. they will be more likely to make internal/ stable attributions for success than they would when they are taking classes not required for their majors.

b. they will be more likely to make external/ unstable attributions for failure than they would when they are taking classes not required for their majors.

2. Overall, males are more likely than females to:

a. attribute success to internal/stable factors.

b. attribute failure to external/unstable factors.

3. Females are more likely than males to make:

a. internal/stable attributions for success in a class which is gender role consistent but will make external/unstable attributions for success in a class which is gender role inconsistent.

b. external/unstable attributions for failure in a class which is gender role consistent but will make internal/stable attributions for failure in a class which is gender role inconsistent.

Method

Participants

Three hundred and ninety undergraduate college students, drawn from various psychology and agriculture classes at Western Kentucky University, participated. Of the total, 253 (64.5%) were female, with the majority being white seniors between the ages of 20 and 22.

Materials

Each individual was required to provide consent to participate in the study. The consent form was the only piece of paper that included the participants' names. A consent form was included with each questionnaire packet.

Participants were administered the Collegiate Attributions Scale (CAS) (see Appendix A). The CAS was designed to measure the attributions for success and failure of college students on classes taken within and outside of their majors as well as attributions for success and failure in courses that are both gender consistent and inconsistent to the students participating in the research. The CAS is composed of 36 items, plus 6 questions that address demographic variables. The scale was developed by the author and is based on the work of Weiner, Frieze, Kulka, Reed, Rest, and Rosenbaum (1971), who identified two basic dimensions of attributions, locus of control (internal and external) and stability (stable and unstable). The study by Mednick and Thomas (1993), who identified four factors of attributions, ability (internal/stable), effort (internal/unstable), task ease (external/stable) and luck (external/unstable), was also utilized. The questions of the CAS were derived from scales based on these dimensions and factors.

The items of the CAS are measured on a four-point Likert scale, with responses ranging from 1 (indicating the subject always feels this way) to 4 (indicating the subject never feels this

way). The participants answered the questionnaires on scantron sheets. Scantron forms and pencils were provided by the researcher for the subjects to record their answers.

Design and Procedure

The participants for this study were recruited from upper-level psychology and agriculture classes. The CAS was administered to the participants by the principle investigator, who delivered the questionnaire, scantron, and pencil to each participant. The participants had ten minutes to complete the scale and then returned the scale to a designated box in the front of the classroom, separating the consent form from the scantron answer sheets.

Results

Hypotheses testing results

Hypothesis 1a: When students take classes required for their majors, they will be more likely to make internal/ stable attributions for success than they would when they are taking classes not required for their majors. This hypothesis was found to be true.

For hypothesis 1a, the independent variable was whether or not a class required for a student's major, and the dependent variable was how likely a student was to make internal/ stable attributions for success in that class. Because predictions were made, two one-tailed t-tests for paired samples were utilized. The results indicated that, as predicted, students taking classes required for thier majors were more likely to make internal/stable attributions for success than when they were taking classes not required for their majors. For comparisons of items one and five, the results were $t = -2.87$ with $df = 373$, $p = .004$, and $\eta^2 = .0216$, and for comparisons of items three and seven, the results were $t = -6.44$, with $df = 367$, $p = .000$, and $\eta^2 = .1015$.

Table 1

Means for Students for Hypothesis 1a

Item	M	SD	n
1- When I do well in a class required for my major, it is because I am a good student.	1.9118	.671	374
5- When I do well in a class not required for my major, it is because I am a good student.	1.9947	.667	374

7- When I do well in a class not required for my major, it is because I am good at this subject.	2.1739	.662	368

Means for Students for Hypothesis 1b

Item	M	SD	n
10- When I do poorly in a class required for my major, it is because I am unlucky.	3.3760	.620	375
12- When I do poorly in a class not required for my major, it is because I am unlucky.	3.3600	.626	375

Note. All means are based upon a four point Likert scale with numbers closer to one indicating greater agreement.

Hypothesis 1b: When students take classes required for their majors, they will be more likely to make external/unstable attributions for failure than they would when they are taking classes outside their majors. This hypothesis was not found to be true.

For hypothesis 1b, the independent variable was whether or not a class was required for a student's major, and the dependent variable was how likely a student was to make external/ unstable attributions for failure in that class. To test hypothesis 1b, a one-tailed t-test for paired samples was utilized, and, contrary to predictions, the results indicated that students were not more likely to make external/unstable (bad luck) attributions for failure in classes required their major than they were for failure in classes not required for their major. For comparison of questions ten and twelve, the results were $t = .65$ with $df = 374$, and $p = .513$ (see table 1). However, students were not more likely to make external/unstable attributions, such as bad luck, for failure but were more likely to attribute failure to lack of effort and task difficulty.

Hypothesis 2a: Overall, males are more likely than females to attribute success to internal stable factors. This hypothesis was not found to be true.

For hypothesis 2a, the independent variable was gender, and the dependent variable was to what extent the student attributed success to internal/ stable attributions. The results of an independent groups t-test indicated that males were not more likely than females to attribute academic success to internal/stable factors, t= 1.317 with df= 385, and p = .189.

Table 2

Means for Males and Females for Hypothesis 2a

	Males			Females		
Item	M	SD	n	M	SD	n
1- When I do well in a class required for my major, it is because I am a good student.	1.90	.69	133	1.94	.66	251
3- When I do well in a class required for my major, it is because I am good at this subject.	2.06	.63	131	1.89	.64	248
5- When I do well in a class not required for my major, it is because I am a good student.	2.13	.72	127	1.94	.63	248
7- When I do well in a class not required for my major, it is because I am good at this subject.	2.22	.67	130	2.15	.67	242

Means for Males and Females for Hypothesis 2b

	Males			Females		
Item	M	SD	n	M	SD	n
10- When I do poorly in a class required for my major, it is because I am unlucky.	3.29	.67	128	3.41	.61	247

12- When I do poorly in a class not required for my major, it is because I am unlucky.	3.30	.66	129	3.38	.61	245
26- When I do poorly in a science class, it is because I am unlucky.	3.18	.61	128	3.22	.52	246
28- When I do poorly in a humanities class, it is because I am unlucky.	3.14	.63	129	3.19	.55	243

Note. All means are based upon a four point Likert scale with numbers closer to one indicating greater agreement.

Hypothesis 2b: Overall, males are more likely than females to attribute failure to external/unstable factors. This hypothesis was not found to be true.

For hypothesis 2b, the independent variable was gender, and the dependent variable was to what extent the student attributed failure to external/ unstable factors. An independent groups t-test revealed that females were just as likely as males to attribute failure in a class to external/unstable factors such as bad luck, $t = 1.31$ with $df = 362$, and $p = .192$ (see table 2). However, the results indicated that neither males nor females had high tendencies to attribute failure to bad luck, preferring to attribute academic failure to lack of effort in the class and task difficulty, both being attributions in which males and females did not differ significantly.

Hypothesis 3a: Females are more likely than males to make internal/stable attributions for success in a class which is gender role consistent and are more likely to make external/unstable attributions for success in a class which is gender role inconsistent. Females were more likely than males to make internal/stable attributions for success in a gender role consistent class; however, females were not more likely than males to make external/unstable attributions for success in a gender role inconsistent class.

For hypothesis 3a, the independent variables were gender and whether or not a class was gender role consistent, and the dependent variable was whether the student made internal/stable attributions or external/unstable attributions for success in the class. A one-way analysis of variance indicated that, consistent with hypothesis 3a, females were more likely to make internal/ stable attributions (ability) for success in a gender role consistent class (humanities), F= 26.2797 with df (1,373) and p= .0000 (see table 3). (The same was also true for internal/unstable attributions (effort), F= 4.21, p= .0036, and with df (1,381), indicating that females attributed success in gender role consistent classes to **both** ability and effort more than males.) However, inconsistent with hypothesis 3a, the results of the one-way ANOVA indicated that females were not more likely than males to make external/unstable attributions (luck) for success in a gender role inconsistent class (science), F = .6660 with df (1,373), and p= .4150 (see table 3). (However, females were more likely to attribute success in a gender role inconsistent class, such as science, to internal/unstable factors, such as effort, F = 5.265 with df (1, 375) and p= .0033).

Table 3

Means for Males and Females for Hypothesis 3a

	Males			Females		
Item	M	SD	n	M	SD	n
21- When I do well in a science class, it is generally because I am good in this field.	2.58	.75	125		---	
23- When I do well in a humanities class, it is because I am good in this field.		---		2.16	.75	250
27- When I do well in a humanities class, it is because I am lucky.	3.11	.70	129		---	

25- When I do well in a science class, it is because I am lucky.		---		3.04	.73	246

Means for Males and Females for Hypothesis 3b

	Males			Females		
	M	SD	n	M	SD	n
26- When I do poorly at a science class, it is because I am unlucky.	3.18	.61	128		---	
28- When I do poorly in a humanities class, it is because I am unlucky.		---		3.19	.55	243
24- When I do poorly in a humanities class, it is because I am not good at this field.	2.73	.74	129		---	
22- When I do poorly in a science class, it is because I am not good at this field.		---		2.46	.76	246

Note. All means are based upon a four point Likert scale with numbers closer to one indicating greater agreement.

Hypothesis 3b: Females are more likely than males to make external/unstable attributions for failure in a class which is gender role consistent and are more likely to make internal/stable attributions for failure in a class which is gender role inconsistent. Females were not more likely than males to make external/unstable attributions for failure in gender role consistent class. However, females were more likely than males to internal/stable attributions for failure in a gender role inconsistent class.

For hypothesis 3b, the independent variables were gender and whether or not a class was gender role consistent, and the dependent variable was whether the student made internal/stable

attributions or external/unstable attributions for failure. Results of a one-way ANOVA indicated that, contrary to predictions, females were not more likely than males to make external/unstable attributions (luck) for failure in a gender role consistent class (humanities), F= .0078 with df (1,369) and p= .9296. However, females were more likely to make internal/stable attributions, such as poor ability, for failure in a gender role inconsistent class (science), F= 9.398 with df (1, 373)and p = .0011 (see table 3).

Also of interest in this study were gender differences in students' enjoyment in learning in courses within and outside of their majors and gender differences in how much importance students place on success in courses within and outside of their majors. Results of a one-way ANOVA showed no significant differences between males and females in the amount of enjoyment they received in learning in courses inside their major, F= 2.6866 with df (3, 386) and p =.0463; however, there were significant differences between males and females in how much students enjoyed learning in courses outside their major, with F= 3.7369, df (3, 386) and p = .0114, and η^2 = .028. Females tended to derive more enjoyment than males from learning in courses outside their majors. Females also placed significantly more importance upon succeeding in courses both within and outside of their majors than did males, with F = 13.9175, df (3, 386), p = .0000, and η^2 = .0976 for importance of succeeding in courses in one's major, and F = 10.2539, df (3, 386), p = .0000, and η^2 = .0738 for importance in succeeding in courses outside of one's major.

Table 4

Means for Males and Females for Items 37, 38, 39, and 40

	Males			Females		
Item	M	SD	n	M	SD	n
37- How much do you enjoy learning in courses in your major?	1.85	.76	137	1.70	.71	253

38- How much do you enjoy learning in courses outside your major?	2.80	.90	137	2.63	.81	253
39- How important is it to you to succeed in courses in your major?	1.55	.68	137	1.27	.52	253
40- How important is it to you to succeed in courses outside your major?	2.30	.92	137	1.88	.76	253

Note. All means are based upon a four point Likert scale with numbers closer to one indicating greater agreement.

Discussion

In this study, the intent was to examine the attributional tendencies of students as well as the differences between male and female students in attributions for success or failure in college courses.

Hypothesis 1a: When students take classes required for their majors, they will be more likely to make internal/ stable attributions for success than they would when they are taking classes not required for their majors. This hypothesis was found to be true. Consistent with attributional literature stated previously and the predictions made in hypothesis one, students of both genders attributed success in a course required for their major to ability more than in a class not required for their major. The indication may be that students place more importance on classes required for their majors and, therefore, success in these classes has a greater impact on their self-esteem, perhaps due to studying harder, making a stronger effort to succeed, or simply being more interested in these classes taken for their majors.

Hypothesis 1b: When students take classes required for their majors, they will be more likely to make external/unstable attributions for failure than they would when they are taking classes not required for their majors. This hypothesis was not found to be true. Contrary to predictions, students seemed to be just as likely to attribute failure in a class not required for their major to bad luck as they were to make the same attribution in a class required for their major. The suggestion here is that students may be reluctant to accept responsibility for failure, regardless of whether or not the class was taken as a requirement for one's major; failure may affect students' self esteem regardless of how important the class may be. However, it must be noted that the results also indicated that students prefer to attribute failure in either situation to lack of effort or task difficulty, with females making more effort attributions for both success and failure than

males. This finding may be related to findings of research on school-age girls, who tend to see themselves as working harder to succeed and lacking effort, resulting in failure, more than school-age boys see themselves (Stipeck & Gralinski, 1991).

The results of the analysis of hypothesis two are interesting in that they show that female attributions for success and failure apparently undergo change from high school to college. Consistent with research on primary school age females, which suggests that females attribute success and failure to effort (Ryckman & Rallo, 1986; Griffin, Combs, Land, & Combs, 1983), college age women may still be more likely than men to attribute both success and failure to effort.

Hypothesis 2a: Overall, males are more likely than females to attribute success to internal stable factors. This hypothesis was not found to be true. The results in the present study indicate that college women appear to be just as likely as college men to attribute academic success to ability. The suggestion is that, by the senior year of college, females are more willing than high school girls to take credit for their success, to give more credit to their ability levels, and to have fewer tendencies to find excuses for their success (for instance, by attributing success to luck). Perhaps females in college have higher average levels of self-esteem than females in high school, which may account for this attributional difference between high school and college females. Theories by Welch, Gerrard, and Huston (1986) on instrumentality might be applicable to female college students in that it is possible that females in college have higher levels of instrumentality than females in high school and, thus, have higher levels of self-esteem than female school children.

Hypothesis 2b: Overall, males are more likely than females to attribute failure to external/unstable factors. This hypothesis was not found to be true. Further analysis of hypothesis two provides more intriguing information in that female participants, who were college students, attributed academic failure to bad luck just as much as males, although, according to Ryckman & Peckman (1987), females in high school do not make these external attributions for failure as much as high school males but instead tend to utilize internal attributions for academic

failure. However, as mentioned before, the results indicated that neither males nor females tended to make high external/stable attributions for failure; both tended to attribute failure to lack of effort (internal/unstable) and to task difficulty (external/stable).

Hypothesis 3a: Females are more likely than males to make internal/ stable attributions for success in a class which is gender role consistent and are more likely to make external/unstable attributions for success in a class which is gender role inconsistent. Consistent with the hypothesis, it was found that females were more likely than males to make internal/stable attributions for success in a gender role consistent class; however, inconsistent with the hypotheses, females were not more likely than males to make external/unstable attributions for success in a gender role inconsistent class.

Findings in the present study are consistent with those of Li and Adamson (1995), who report that 5th, 6th, and 7th grade gifted females had greater confidence in their ability in English classes than did gifted males, and also that gifted females, compared to non-gifted females, did not appear to show stronger maladaptive (external/unstable) attributions towards science than males. According to the authors, non-gifted females tend to display more maladaptive attributions to academic success and failure, have lower levels of self-esteem, and are less motivated than gifted females. Li and Adamson hypothesize that these factors may explain the obtained differences in attribution patterns between their findings and previous research. Similarly, the results of the present study show that college females displayed more internal/stable attributions for success in gender role consistent classes than males, which is consistent with the results of Ryckman and Peckham (1987). Also, females participants in the present study were not more likely than males to make external/ unstable attributions for success.

Hypothesis 3b: Females are more likely than males to make external/unstable attributions for failure in a class which is gender role consistent and are more likely to make internal/stable attributions for failure in a class which is gender role inconsistent. Contrary to

the hypothesis, females were not more likely than males to make external/unstable attributions for failure in gender role consistent class. However, consistent with the hypothesis, it was found that females were more likely than males to make internal/stable attributions for failure in a gender role inconsistent class. Thus, college females differed from gifted high school females and were similar to non-gifted high school females in that they tended to make internal/ stable attributions for failure in gender role inconsistent classes. These results are consistent with research conducted by Deaux and Farris (1977), who found that since self esteem is not as involved in opposite sex tasks, female participants made internal/stable attributions for failure in opposite sex tasks without loss of self esteem.

Overall, results in the present study suggest that college students appear to place more importance on succeeding in courses taken for their majors rather than in courses taken as electives or as general education courses. Furthermore, college females' attributions appear to undergo several changes from the high school years and are also different from the attributions of adult females who are not enrolled in college. The difference appears to be that college females' attributions for success and failure more closely resemble those of males; one exception to this is that of effort, to which females attribute both success and failure more often than males. Thus, it is possible that college females are more motivated, similar to high- achieving high school females, and possess higher levels of self esteem than adult females who did not attend college. However, these differences in female attributional style, with college women more similar to high-achieving high school females, may indicate that the high-achieving high school females are primarily the students who choose to attend college, bringing their attributions with them. Meanwhile, the lower-achieving high school females may make up the non-collegiate adult female population, which may explain why the attributions of college females are more similar to high-achieving high school females than to the noncollegiate adult female population.

Several limitations exist in this research. First, some of the items of the scale may be interpreted in several ways by the participants, and revision of these items would be beneficial for future uses of the scale. Another limitation is the fact that the entire population of participants came from one four-year, public university, providing little regional, ethnic, and socio-economic diversity among participants. Future research should include populations from other regions of the country, private universities, and two-year universities, as well as participants from various ethnic backgrounds.

Of special interest are the results of the analysis of gender differences in the amount of enjoyment that students receive from their classes as well as the importance students place on succeeding in their classes. Women appear to place more importance than men on succeeding in their classes, both within and outside their majors, while enjoying classes outside their major more than males but not more than classes within their major. This point is interesting because males are stereotypically characterized as more success-driven than females (Weiner et al., 1971). Thus, more research is needed on college students' drive for success. Perhaps college women are feeling more pressure to succeed today so that they might be as eligible, if not more eligible, than men for tomorrow's jobs. As the percentage of women attending college grows, perhaps women feel more pressure to compete with the rising number of other female students. Perhaps college women are becoming more success-driven than men in many areas. Future research could answer these questions.

Longditudinal research of students from high school through two or three years past graduation would be beneficial, as this type of research would provide information not availiable from cross-sectional research. Longitudinal research might indicate if student attributions undergo changes after high school or if the high achieving students attend college and low achieving students enter the work force without ever experiencing attributional changes.

Also of interest is attributional accuracy. Research is needed to show to what degree students are able to accurately define their attributions. It may be that participants do not fully understand their attributional tendencies and cannot accurately describe thier attributions. If so, conclusions based on present ways of measuring attributions are of limited value. It would therefore be beneficial to have clearer definitions of attributions.

The fact that the participants in this research tend to make internal/stable (effort) attributions for both success and failure indicates a change from the attributional tendencies of the participants in past research. Furthermore, it appears that neither male nor female students tend to make external attributions for success or failure, a finding that indicates dramatic differences from the results of the research of the early eighties. Students seem to have undergone several attributional changes, both in the growth of attributions for success and failure to effort and in the lack of attributions for success and failure to luck. Clearly, now is the time for further research in this area.

Also, more information about the reasons that people form attributions would be useful to assist researchers in formulating explanations for existing gender differences in attributional styles. Research describes how people attribute success and failure but very seldom indicates why. Although hypothesized reasons are sometimes discussed in a research article, they are usually reviewed in a brief paragraph, generally for the purpose of leading into a discussion about how attributions are formed rather than to be very informative. The ego-involvement theory is perhaps the most discussed explanation, but even this theory is lacking in a solid foundation of research.

Researching the reasons behind the formation of attributions presents a number of difficulties. One method of undertaking such research would be to conduct in-depth interviews with people, and perhaps ask the subjects to explain why they attribute success to ability or failure to teacher performance, or why they have an external attribution about failure in classes in their majors but have an internal attribution about failure in elective classes. There are obvious

problems with this form of research, the first and foremost being time. This form of research, interviewing each subject alone and then scoring the possibly vastly different responses for each subject, is complicated and impractical.

Another problem with the research in this field is the lack of agreement among studies concerning gender differences. It appears that there are nearly as many studies that conclude that there are no gender differences in causal attributions as there are studies that conclude that the gender differences are vast. Clearly, more research (or perhaps better research) is needed to answer the question of what exactly are the gender differences, if any, in causal attributions for success and failure.

Research such as this is important in helping to achieve a greater understanding of male and female expectancies for achievement. High school and college counselors could apply this information in order to help students approach academic tasks in a more adaptive fashion; it would be especially useful for guiding students toward responding less maladaptively to academic failure and more adaptively toward academic success. Knowledge of attributional patterns in students may be helpful to counselors for building students' self-esteem, confidence levels and feelings of competency in various academic areas, particularly in academic areas that students feel are inconsistent with the general expectancies for their gender.

Thus, with future research, a clearer understanding of attributional styles, the gender differences involved, and a deeper understanding of why these attributions are formed may be obtained and utilized by educators, counselors and researchers alike to assist students in developing the most adaptive attitudes towards academic situations as well as every day situations in life.

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Appendix A
Items from the the Collegiate Attribution Scale

Attributions as they are related to a students success/do failure in classes which **are/are not required** for a **major**.

Ability *(Internal /Stable)*
1. When I do well in a class required for my major it is because I am a good student.
2. When I do poorly in a class required for my major, it is because I am **not** a good student.
3. When I do well in a class required for my major it is because I am good at this subject.
4. When I do poorly in a class required for my major, it is because I am **not** good at this subject.
5. When I do well in a class **not** required for my major it is because I am a good student.
6. When I do poorly in a class **not** required for my major, it is because I am **not** a good student.
7. When I do well in a class **not** required for my major it is because I am good at this subject.
8. When I do poorly in a class **not** required for my major, it is because I am **not** good at this subject

Luck *(External/Unstable)*
9. When I do well in a class required for my major it is because I am lucky.
10. When I do poorly in a class required for my major, it is because I am unlucky.
11. When I do well in a class **not** required for my major, it is because I am lucky.
12. When I do poorly in a class **not** required for my major, it is because I am unlucky.

Effort *(Internal/Unstable)*
13. When I do well in a class required for my major it is because I try very hard.
14. When I do poorly in a class required for my major, it is because I do not try very hard.
15. When I do well in a class **not** required for my major, it is because I try very hard.
16. When I do poorly in a class **not** required for my major, it is because I do not try very hard.

Task Difficulty *(External/Stable)*
17. When I do well in a class required for my major it is because the class is easy.
18. When I do poorly in a class required for my major, it is because the class is hard.
19. When I do well in a class **not** required for my major, it is because the class is easy.
20. When I do poorly in a class **not** required for my major, it is because the class is hard.

Attributions for classes which are typically **gender stereotyped**.

Ability *(Internal/Stable)*
21. When I do well in a science class (Physics, Chemistry, Biology), it is because I am good in this field.
22. When I do poorly at a science class, it is generally because I am not good in this field.
23. When I do well in a humanities class (English , History,Language) it is because I am good at this field.
24. When I do poorly in a humanities class, it is because I am not good at this field.

Luck *(External/Unstable)*
25. When I do well in a science class, it is because I am lucky.
26. When I do poorly at a science class, it is because I am unlucky.
27. When I do well in a humanities class, it is because I am lucky.
28. When I do poorly in a humanities class, it is because I am unlucky.

Effort *(Internal/Unstable)*
29. When I do well in a science class, it is because I try hard.
30. When I do poorly in a science class, it is because I don't try very hard.
31. When I do well in a humanities class, it is because I try very hard.
32. When I do poorly in a humanities class, it is because I don't try very hard.

31. When I do well in a humanities class, it is because I try very hard.
32. When I do poorly in a humanities class, it is because I don't try very hard.

Task Difficulty *(External/Stable)*
33. When I do well in a science class, it is because the class is easy.
34. When I do poorly in a science class, it is because the class is very hard.
35. When I do well in a humanities class, it is because the class is easy.
36. When I do poorly in a humanities class, it is because the class is very hard.

Appendix B

Please answer the following questions on the scantron provided using the code below.

A = strongly agree B = agree C = disagree D = strongly disagree E = no opinion/ not applicable

1. When I do well in a class required for my major, it is because I am a good student.

2. When I do poorly in a class required for my major, it is because I am **not** a good student.

3. When I do well in a class required for my major, it is because I am good at this subject.

4. When I do poorly in a class required for my major, it is because I am **not** good at this subject.

5. When I do well in a class **not** required for my major, it is because I am a good student.

6. When I do poorly in a class **not** required for my major, it is because I am not a good student.

7. When I do well in a class **not** required for my major, it is because I am good at this subject.

8. When I do poorly in a class **not** required for my major, it is because I am **not good** at this subject.

9. When I do well in a class required for my major, it is because I am lucky.

10. When I do poorly in a class required for my major, it is because I am unlucky.

11. When I do well in a class **not** required for my major, it is because I am lucky.

12. When I do poorly in a class **not** required for my major, it is because I am unlucky.

13. When I do well in a class required for my major, it is because I try very hard.

14. When I do poorly in a class required for my major, it is because I do not try very hard.

15. When I do well in a class **not** required for my major, it is because I try very hard.

16. When I do poorly in a class **not** required for my major, it is because I do not try very hard.

17. When I do well in a class required for my major, it is because the class is easy.

18. When I do poorly in a class required for my major, it is because the class is hard.

19. When I do well in a class **not** required for my major, it is because the class is easy.

20. When I do poorly in a class **not** required for my major, it is because the class is hard.

21. When I do well in a science class (Chemistry, Biology, etc), it is generally because I am good in this field.

22. When I do poorly at a science class, it is generally because I am not good in this field.

23. When I do well in a humanities class (English, History, Language), it is because I am good at this field.

24. When I do poorly in a humanities class, it is because I am not good at this field.

25. When I do well in a science class, it is because I am lucky.

26. When I do poorly at a science class, it is because I am unlucky.

27. When I do well in a humanities class, it is because I am lucky.

28. When I do poorly in a humanities class, it is because I am unlucky.

29. When I do well in a science class, it is because I try hard.

30. When I do poorly in a science class, it is because I don't try very hard.

31. When I do well in a humanities class, it is because I try very hard.

32. When I do poorly in a humanities class, it is because I don't try very hard.

33. When I do well in a science class, it is because the class is easy.

34. When I do poorly in a science class, it is because the class is very hard.

35. When I do well in a humanities class, it is because the class is easy.

36. When I do poorly in a humanities class, it is because the class is very hard.

Please answer questions 37-40 on the scantron provided using the code below.

1. extremely **2. very much** **3. moderately** **4. a little**

5. not at all

37. How much do you enjoy learning in courses in your major?

38. How much do you enjoy learning in courses outside your major?

39. How important is it to you to succede in courses in your major?

40. How important is it to you to succede in courses outside your major?

41. I am a.... A. Male B. Female

42. I am a.... A. Freshman B. Sophomore C. Junior D. Senior E.Graduate/Audit

43. My age is... A. 17-19 B. 20-22 C. 23-25 D. 26-29 E. 30 or above

44. I am... A. White B. Black C. Hispanic D. Asian/Pacific Islander E.Other

45. I am taking this class.... A. For my major B. As an elective C. As a general education requirement

46. My overall G.P.A. is between... A. 0.0 and 1.0 B. 1.1 and 2.0 C. 2.1 and 3.0 D. 3.1 and 4.0

On the scantron sheet, please state your major and minor in the space provided for your name, which can be found on the side of the scantron sheet.